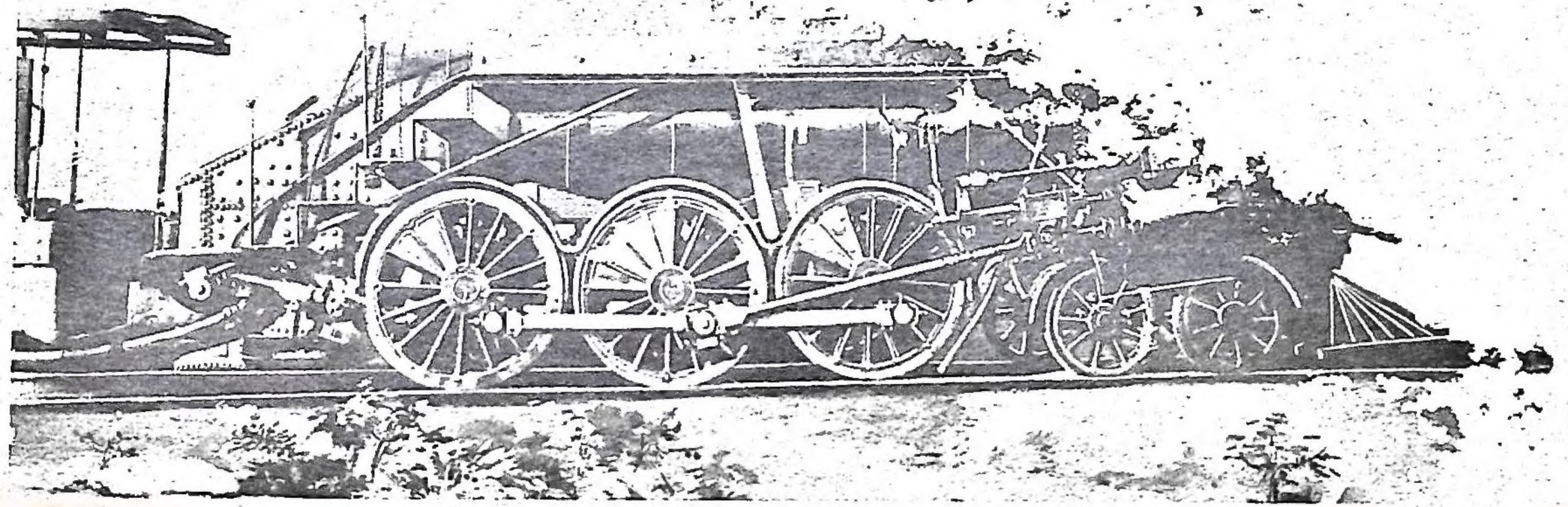
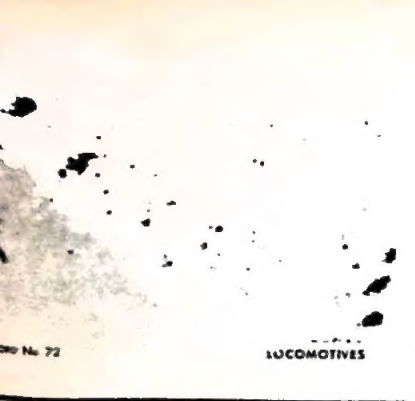
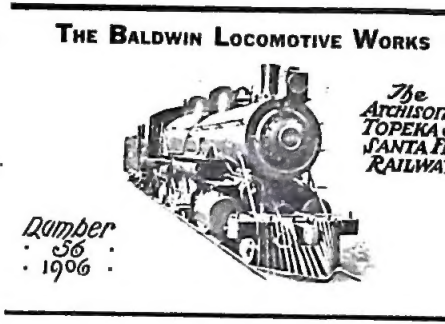
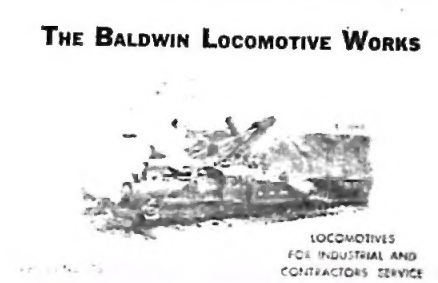


B & O 10-Wheel "Camel" - 1853

BALDWIN LOCOMOTIVE WKS







1914
Locomotives — $2.00

RECORD No. 89 — 1917
Development of the Eight Wheel Drive Locomotive — $2.00

PENNSYLVANIA RAILROAD

K4s

Picture Study — Specifications — Tender Data — Drawings — Official Roster 40 Pages — over 60 Pictures — Issued October 1967 — $3.00.

Be sure to get brochure covering all of these publications — Send stamp to:

STEAM LOCOMOTIVES OF YESTERYEAR (DEPT. C)
Harry P. Albrecht, Publisher
40 Wilton Ave., — Clifton Heights, Pa. 19018

COVER

Here is the 1027 at Winslow Junction, N. J. This very rare picture was taken by the Late Frederick Somerville in 1897.

In presenting this publication an endeavor was made to select what is thought to be a few unusual MOTHER HUBBARD and CAMELBACK Locomotives.

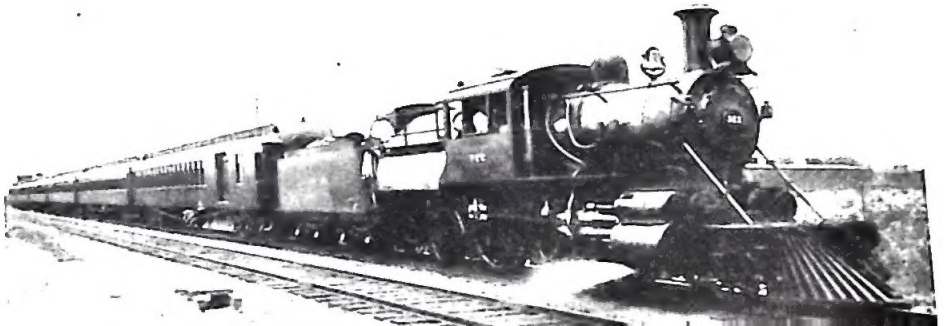
Of particular interest will be the CHICAGO & EASTERN ILLINOIS engine No. 171, a 4-8-0 Compound built by the American Locomotive Co. about 1906.

Also the SOUTHERN PACIFIC and UNION PACIFIC engines are rather unusual as are the LEHIGH VALLEY Pacifics. As you review the pages you will find other locomotives which are a little different, namely the BALTIMORE & OHIO HAYES 10-Wheelers. Please be sure to study the No. 1027 schedule and take particular notice that on a number of occasions this run of 55½ miles was made in slightly over 46 minutes – this was in 1897!

The pictures are from my collection. However, the UP-768, LV-2004, LI-14 and ERIE 2601 are from the Don Somerville collection.

HARRY P. ALBRECHT
Publisher – STEAM LOCOMOTIVES OF YESTERYEAR

February 1971

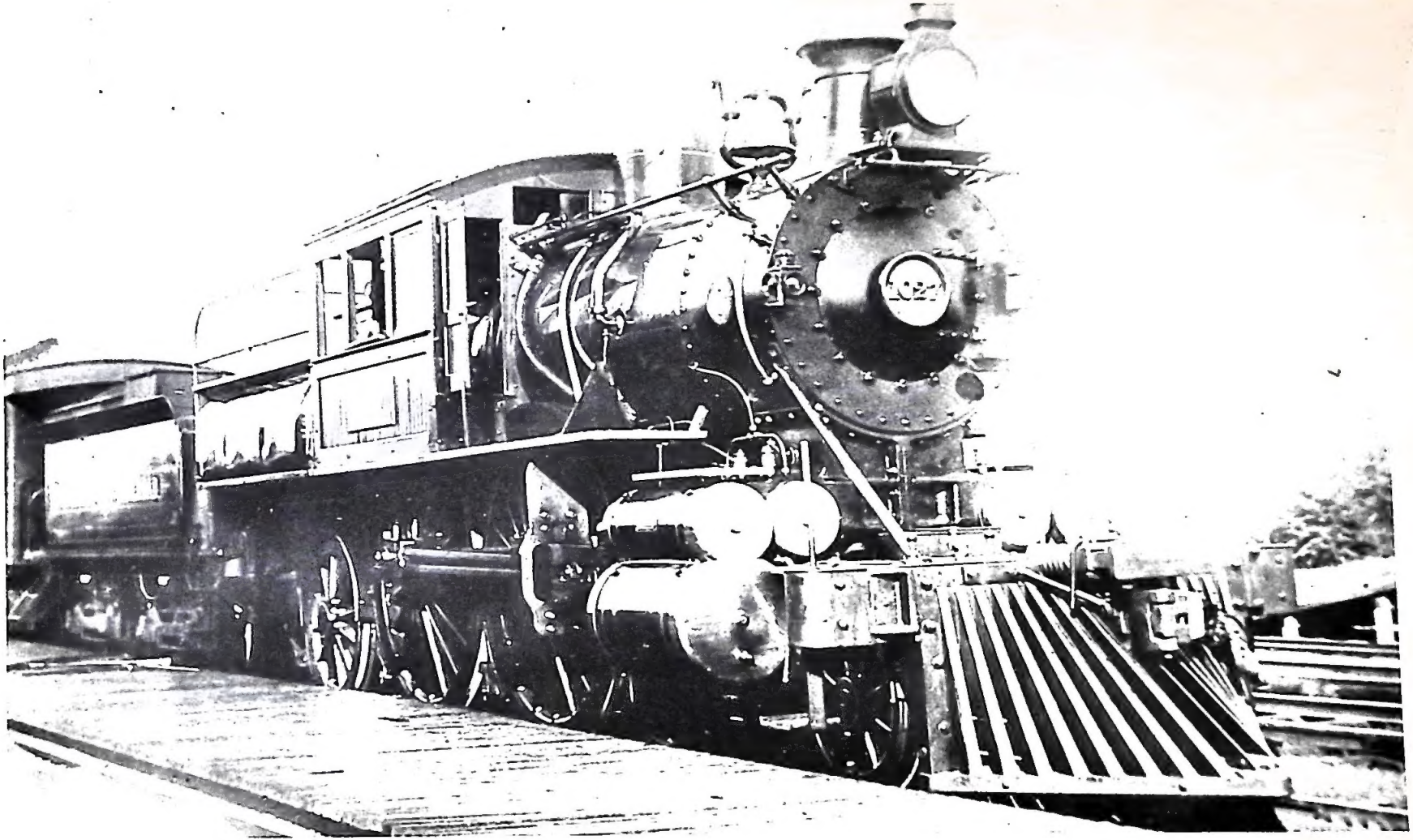


ENGINES 1027 and 1028

The year is 1896 and the question of reducing the time to Atlantic City, N. J. was receiving close attention at that time. The Ferry from Philadelphia to Camden required about 10 minutes and the distance thence to Atlantic City was 55½ miles, via the Philadelphia & Reading Railroad route. In 1888 the fastest trains were scheduled to make the run, including the Ferry in 85 minutes. In 1899 this was reduced to 80 minutes; in 1890 to 75 minutes and subsequently to 70 minutes. In 1897 the Baldwin Locomotive Works built for this division two locomotives which were guaranteed to run the 55½ miles in 60 minutes with 8 cars or in 50 minutes with 6 cars. These locomotives were Atlantic Type with Vulclain compound cylinders. They showed exceptional capacity, and in test developed 1450 indicated horsepower at a speed of 70 miles per hour. Their performance convinced the Philadelphia & Reading of the practicability of reducing the running time to 60 minutes including the Ferry and the first regular scheduled train was run in 1897.

CYLINDERS – 13" x 22" x 26"
DRIVING WHEEL DIAMETER – 84¼"
STEAM PRESSURE – 200 lbs.

WEIGHT ON DRIVERS – 78,600 lbs.
TRACTIVE EFFORT – 14,400 lbs.



We are indebted to the late Mr. Somerville as he took this picture at Camden, N. J., just as the 1027 was about to make its 55½ mile dash to Atlantic City, N. J. in 1897.

PERFORMANCE OF ENGINE 1027 OF THE ATLANTIC CITY RAILROAD.

JULY

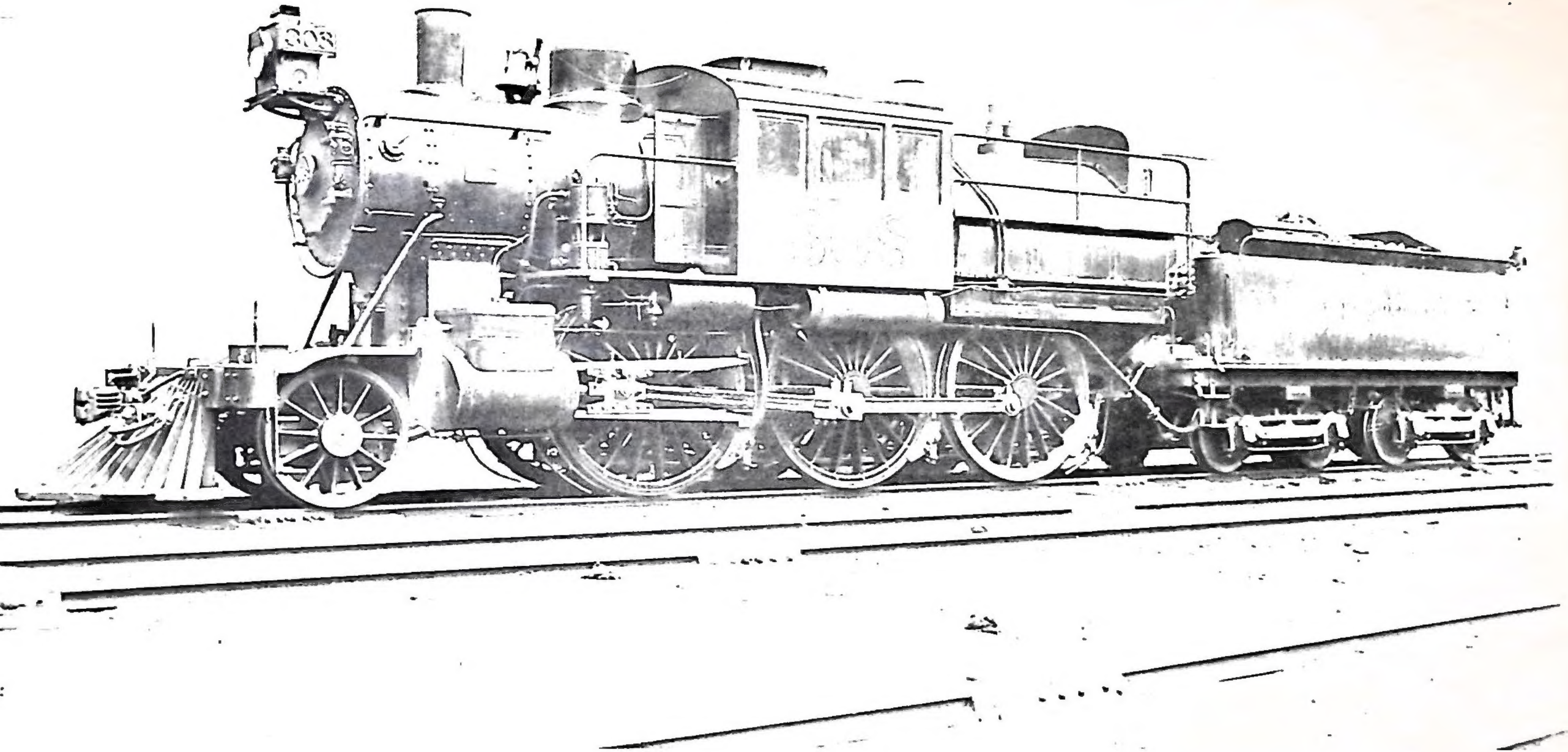
STATIONS.	Distance.	Schedule Time.	2d	3d	5th	6th	7th	8th	9th	10th	12th	13th	14th	15th	16th	17th	19th	20th	21st	22d	23d	24th	26th	27th	28th	29th	30th	31st
Camden	.0	3.48	3.50½	3.50½	3.50½	3.50½	3.51	3.50½	3.49½	3.49½	3.49½	3.49	3.49½	3.50½	3.51½	3.51½	3.51	3 51	3.50½	3.50	3.49½	3.49	3.49	3.49½	3.48½	3.49	3.49	3.50
W. Collingswood	3.1	3.54	3.55	3.55	3.55	3.55	3.56	3.55	3.54½	3.54	3.54	3.54	3.54	3.54½	3.56	3.55½	3:55	3.55½	3.56	3.55	3.54½	3.54	3.54	3.54	3.53½	3.53½	3.54	3.55
Haddon Heights	5.5	3.56	3.57½	3.58	3.57	3.58	3.58	3.57½	3.57	3.57	3.56½	3.56½	3.56	3.57½	3.59	3.58½	3.58	3.58	3.58	3.57	3.56½	3.57	3.56½	3.56½	3.56	3.56	3.57	3.57½
Magnolia	7.9	3.58	4.00	4.00	4.00	4.00	4.00½	3.59½	3.59½	3.58½	3.59	3.58½	3.59	3.59½	4.01	4.01	4.00	4.00	4.00½	3.59½	3.59	3.59	3.59	3.59	3.68	3.58½	3.59	3.59½
Clementon	12.0	4.02	4.03	4.03½	4.03½	4.03	4.04	4.02½	4.02½	4.02	4.02	4.01½	4.02	4.02½	4.04	4.04	4.03	4.03	4.03½	4.02	4.02	4.02	4.02	4.02	4.02	4.01	4.01½	4.02
Williamstown Junc.	17.0	4.06	4.07½	4.08	4.07½	4.07	4.08	4.07½	4.06½	4.06	4.06	4.06	4.06	4.06½	4.08	4.08½	4:07	4.07½	4.07½	4.06	4.07	4.06	4.06	4.06	4.06	4.06	4.06	4.07
Cedar Brook	19.9	4.09	4.10	4.10½	4.10½	4.10	4.10½	4.09½	4.09½	4.09	4.09	4.08½	4.08½	4.09½	4.10½	4.11	4.09½	4.09½	4.10½	4.09	4.09	4.09	4.09	4.09	4.08	4.08½	4.09	4.09½
Winslow Junc.	24.5	4.12	4.13½	4.14	4.14	4.13½	4.14	4.13	4.13	4.12½	4.13	4.12½	4.12	4.13	4.14	4.15	4.13	4.13	4.14	4.12½	4.12½	4.12½	4.12½	4.12½	4.12½	4.11½	4.12	4.12½
Hammonton	27.6	4.15	4.16	4.16½	4.16½	4.16	4.16½	4.15½	4.15	4.15	4.15	4.14½	4.14½	4.15	4.17	4.17½	4.15½	4.16	4.16½	4.15	4.15	4 15	4.15	4.15½	4.14	4.14½	4.15	4.15
Elwood	33.8	4.20	4.20½	4.21	4.21	4.20½	4.21½	4.20½	4.20½	4.20	4.20	4.19½	4.19½	4.20	4.21	4.22	4.20	4.20½	4.21	4.19½	4.20	4.19½	4.20	4.20	4.19	4.19	4.19½	4.20
Egg Harbor	38.7	4.24	4.25	4.25	4.25	4.24	4.25	4.24½	4.24	4.24	4.24	4.24	4.23½	4.23½	4.24½	4.26	4.24	4.24	4.25	4.23½	4.24	4.24	4.24	4.24	4.23	4.23	4.23	4.23½
Brigantine Junc.	43.5	4.28	4.28½	4.29½	4.29	4.28	4.29	4.28	4.28	4.28	4.28	4.27	4.27	4.27	4.28½	4.29½	4.27½	4.28	4.29	4.27	4.27½	4.27	4.27½	4.28	4.27	4.26½	4.26½	4.27½
Pleasantville	50.5	4.33	4.34½	4.35	4.34	4.34	4.35	4.33	4.33	4.33	4.33½	4 33	4.32	4.33	4.34	4.35½	4:32½	4.33½	4.34½	4.32½	4.33	4.32½	4.33	4.33½	4.32½	4.32½	4.32	4.33
Meadow Tower	53.8	. . . .	4.37	4.37	4.37	4.36½	4.37	4.35½	4.36	4.36	4.36	4.35½	4.34½	4.35	4.36½	4.37½	4.35½	4.36	4.37	4.35½	4.36	4.35	4.36	4.36	4.35½	4.35	4.35	4.35½
Atlantic City	55.5	4.40	4.38½	4.38½	4.38	4.37½	4.38½	4.37½	4.37½	4.37½	4.37½	4.37	4.36	4.39	4.38½	4.39½	4.38	4.38	4.38½	4.37½	4.38	4.38	4.39	4.38½	4.38	4.38	4.37	4.38
Number of cars	. . . .	. . . .	5	5	5	6	5	5	6	6	5	5	5	5	5	6	5	5	5	5	6	6	5	5	5	6	,6	6
Running time	. . . .	. . . .	48	47½	.47½	.47	.47½	.47	.48	.48	.48½	.48	.46½	.48½	.47	.48	.47	.47	.47½	.47½	.48½	.49	.50	.49	.49½	.49	.48	.47
Miles per hour (av'e)	. . . .	. . . .	69.3	69.7	70.1	70.8	70.1	70.8	69.3	69.3	69.0	69.3	71.6	68.3	70.8	69.3	70.8	70.8	69.7	70.1	68.6	67.9	66.6	67.9	67.6	67.9	69.3	70.8

Weight of 5-car train, including locomotive and tender, 255 tons of 2240 pounds. Weight of 6-car train, including locomotive and tender, 290 tons of 2240 pounds.

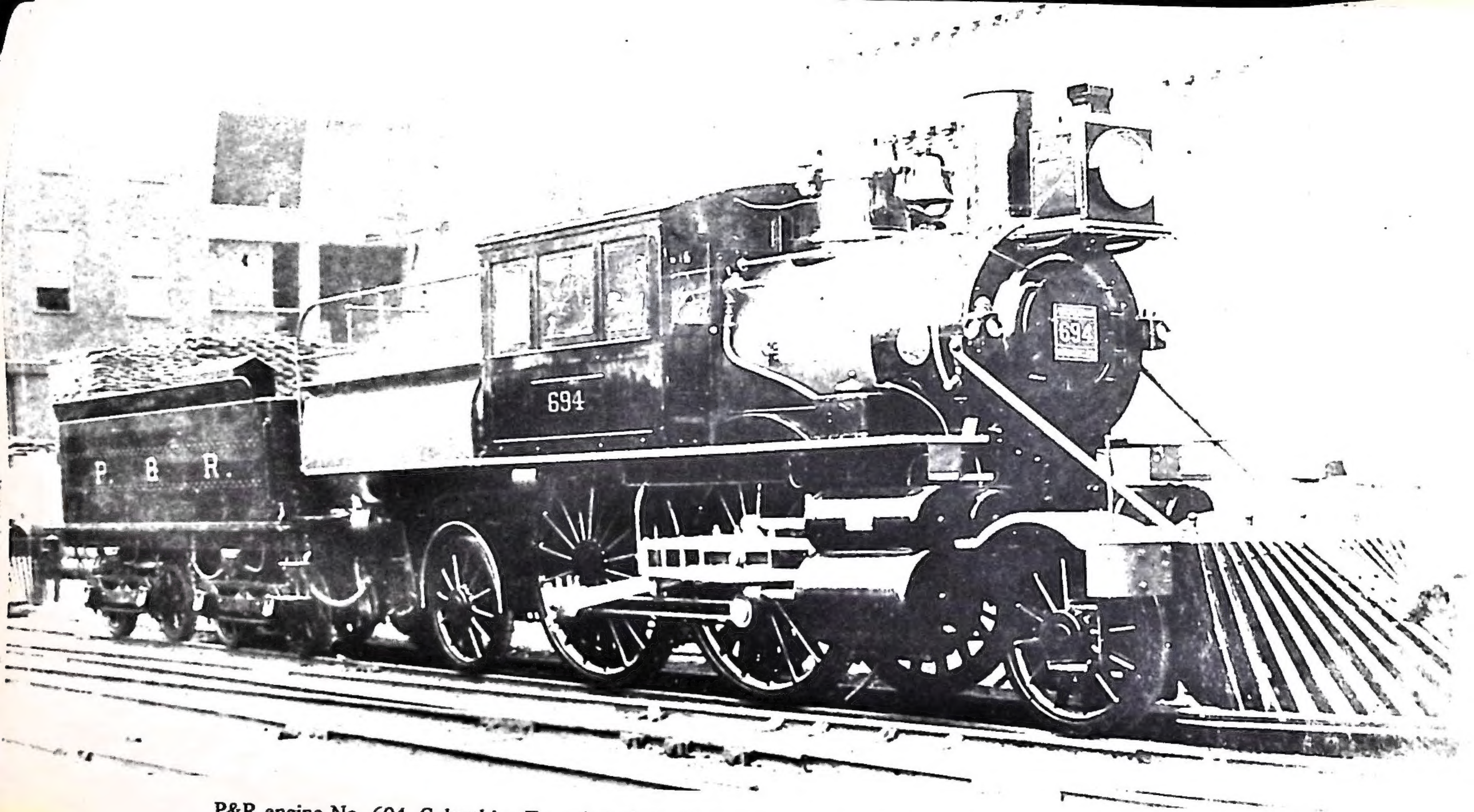
AUGUST.

STATIONS.	Distance.	Schedule Time.	2d	3d	4th	5th	6th	7th	9th	10th	11th	12th	13th	14th	16th	17th	18th	19th	20th	21st	23d	24th	25th	26th	27th	28th	30th	31st
Camden	.0	3.48	3.51½	3.51½	3.51½	3.50½	3.50½	3.49½	3.50½	3.50½	3.49½	3.50	3.50½	3.51½	3.51½	3.51½	3.51½	3.51½	3.51	3.51½	3.49½	3.49½	3.49½	3.49½	3.49½	3.49½	3.50½	3.51
W. Collingswood	3.1	3.54	3.56	3.56½	3.56	3.55½	3.55	3.54	3.55	3.55½	3.54½	3.55	3.55	3.56	3.56	3.56	3.56	3.55½	3.56	3.57	3.54	3.54	3.54	3.54	3.55	3.54	3.55	3.55
Haddon Heights	5.5	3.56	3.59	3.59	3.59	3.58½	3.57½	3.56½	3.57½	3.58	3.57	3.57	3.57½	3.58½	3.59	3.58½	3.58	3.58	3.58½	3,59	3.56½	3.57	3.56½	3.56½	3.57½	3.57	3.57½	3.58
Magnolia	7.9	3.58	4.01	4.01	4.01	4.00½	3.59½	3.59	3.59½	4.00½	3.59½	3.59½	3.59½	4.01	4.01	4.01	4.00½	4.00½	4.00½	4.01½	3.59	3.59	3.59	3.59	4.00	3.59	3.59½	4.00
Clementon	12.0	4.02	4.04	4.04½	4.04	4.03½	4.03	4.02	4.02½	4.03½	4.02½	4.02½	4.03	4.04	4.04½	4.04	4.03½	4.04	4.04	4.04½	4.02½	4.02	4.02	4.02	4.03	4.02	4.02½	4.03
Williamstown Junc.	17.0	4.06	4.08½	4.08½	4.08½	4.07½	4.07½	4.06	4.07	4.08	4.07	4.06½	4.07	4.08	4.08½	4.08	4.08	4.08	4.08	4.09	4.06½	4.06	4.06	4.06	4.07	4.06	4.06½	4.07
Cedar Brook	19.9	4.09	4.11	4.11	4.11	4.10½	4.09½	4.09	4.09½	4.10½	4.09	4.09	4.09½	4.11	4.11	4.10½	4.10½	4.10½	4.10½	4.12	4.09	4.09	4.08½	4.09	4.09½	4.09	4.09	4.10
Winslow Junc.	24.5	4.12	4.14½	4.15	4.14½	4.13½	4.13	4.12½	4.12½	4.14	4.12½	4.12½	4.13½	4.14½	4.14½	4.14	4.13½	4.14	4.13½	4.15	4.13	4.12½	4.12½	4.12½	4.13	4.12	4.12½	4.13½
Hammonton	27.6	4.15	4.17	4.17	4.17	4.16	4.15	4.15	4.15	4.16½	4.15	4.15	4.15½	4.17	4.17	4.16½	4.16½	4.16½	4.16	4.17½	4.15	4.14½	4.14½	4.14½	4.15½	4.14½	4.15	4.15½
Elwood	33.8	4.20	4.21½	4.21½	4.21½	4.20½	4.20	4.20	4.20	4.21½	4.19½	4.20	4.20	4.21½	4.21½	4.20½	4.20½	4.21	4.20½	4.22½	4.19½	4.19½	4.19	4.19½	4.20	4.19	4.19½	4.20
Egg Harbor	38.7	4.24	4.25	4.25	4.25	4.24	4.24	4.24	4.23½	4.24½	4.23	4.24	4.23½	4.25	4.25½	4.24½	4.24½	4.25	4.24	4.26	4.23½	4.23	4.23	4.23	4.24	4.23	4.23	4.24
Brigantine Junc.	43.5	4.28	4.29	4.29½	4.29	4.28	4.27	4.27	4.27	4.28	4.27	4.27	4.27½	4.29	4.29	4.28	4.28½	4.28½	4.27½	4.30	4.27	4.27	4.27	4.27	4.27½	4.26½	4.26½	4.27½
Pleasantville	50.5	4.33	4.34	4.34½	4.34½	4.33	4.33	4.33	4.33	4.34	4.32½	4.33	4.33	4.35	4.34½	4.33½	4.34	4.34½	4.33	4.35½	4.32½	4.32	4.32½	4.32½	4.33½	4.31½	4.32	4.33
Meadow Tower	53.8	. . . .	4.36½	4.37½	4.37	4.36	4.35½	4.35½	4.35½	4.37	4.35	4.35½	4.35½	4.37½	4.37½	4.36½	4.36½	4.36½	4.35	4.38	4.35	4.35	4.35	4.35½	4.36	4.34	4.35	4.36
Atlantic City	55.5	4.40	4.38½	4.39	4.39½	4.38½	4.37½	4.37½	4.38	4.38½	4.37½	4.38	4.37½	4.39½	4.39½	4.38½	4.38½	4.38½	4.37½	4.40	4.38	4.38	4.38½	4.38½	4.38½	4.37½	4.38	4.37½
Number of cars	. . . .	. . . .	6	6	6	6	6	6	5	6	6	6	6	6	6	6	6	6	6	6	6	6	5	6	5	6	5	5
Running time	. . . .	. . . .	.46½	.47½	.48	.48	.47½	.48	.47½	.48	.48	.48	.47½	.48	.47½	.46½	.47½	.47	.46½	.48½	.48½	.48½	.49	.49	.48½	.48½	.47½	.46½
Miles per hour (av'e)	. . . .	. . . .	71.2	70.1	69.3	69.3	70.4	69.3	69.7	69.3	69.3	69.3	70.1	69.3	69.7	71.2	70.1	70.8	71.2	69.0	68,6	68.6	67.9	67.9	68.3	69.0	69.7	71.2

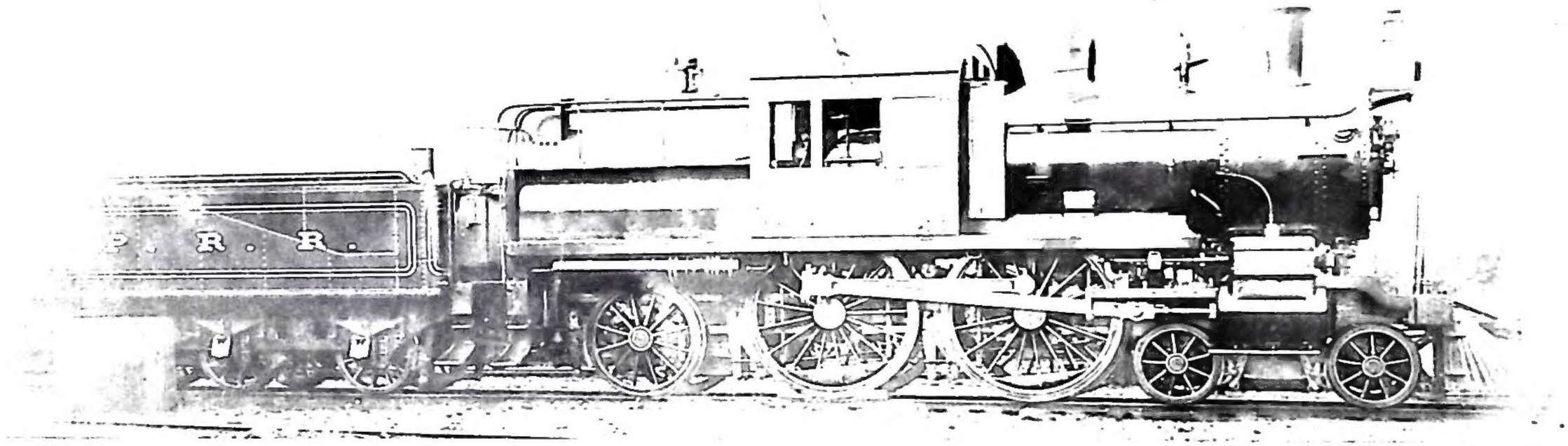
Engineer Fahl. Conductor Stokes.



P&R engine No. 308 as rebuilt to a 2-6-0 about 1903.

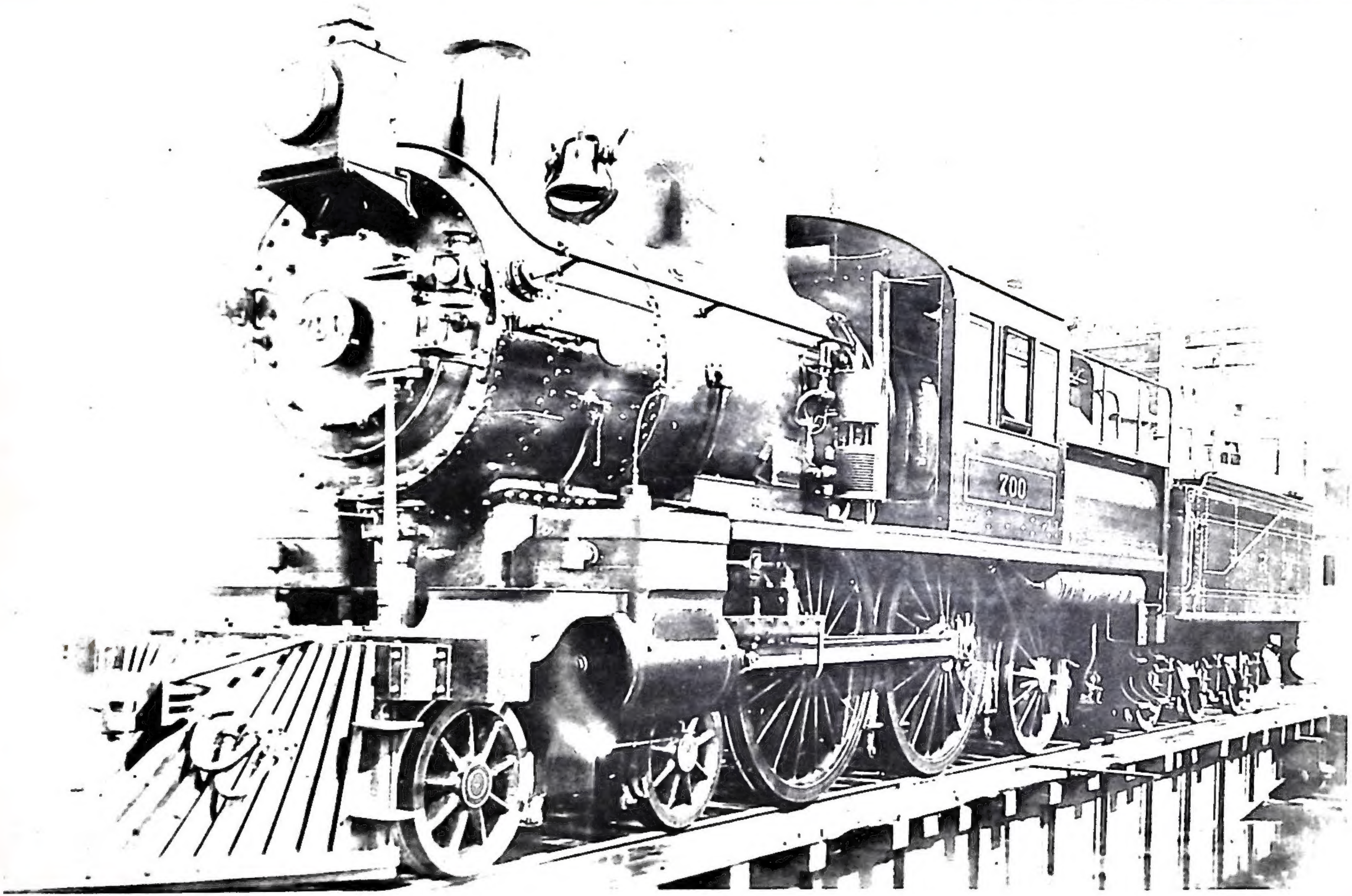


P&R engine No. 604, Columbian Type (2-4-2), built by Baldwin about 1892 for fast passenger service on Philadelphia-New York run. This engine was exhibited by the Baldwin Locomotive Works at the Columbian Exhibition in Chicago in 1893.



The (Atlantic City Railroad) Philadelphia & Reading were making a very fast schedule between Camden and Atlantic City with their engines No. 1027 and 1028.

To compete with this schedule the PRR, in 1899, built three Atlantic Type locomotives in their Juniata shops. They were not only the first Atlantic Type but were the first and only MOTHER HUBBARDS to be built by the PRR. These engines were classed E-1 and were numbered 698, 700 and 820. While they did an excellent job because of the policy of the PRR in separating the engineer and fireman they were not duplicated, and in spite of their excellent records were sold to the Long Island Railroad in 1902 and 1903 and became engines No. 198, 199 and 200 on that road.

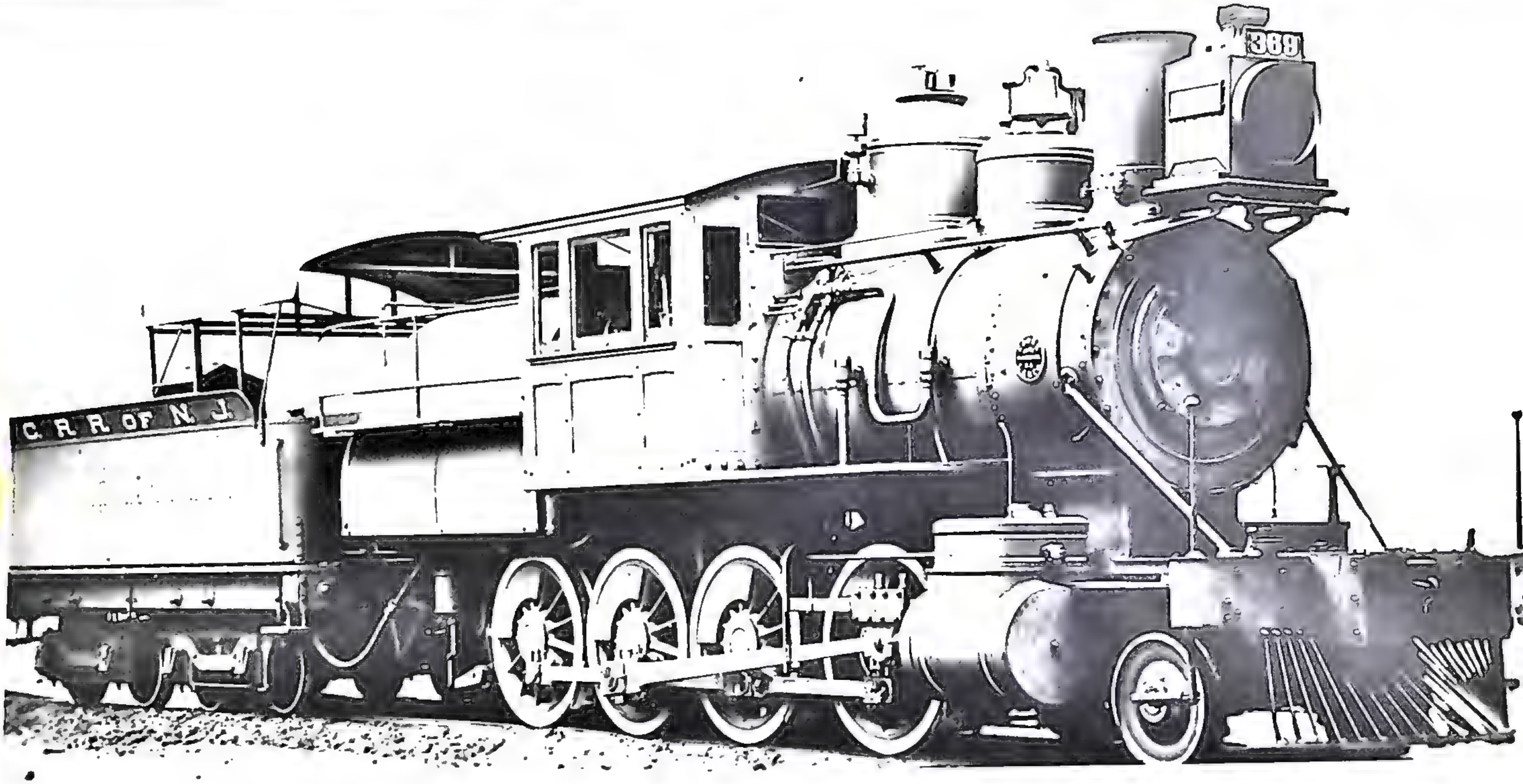


Engines 700 and 820 at Atlantic City, N. J. 1900.

LOCOMOTIVES 698 — 700 — 820

CYLINDERS — 20½" x 26"
DRIVING WHEEL DIAMETER — 80"
STEAM PRESSURE — 185 lbs.

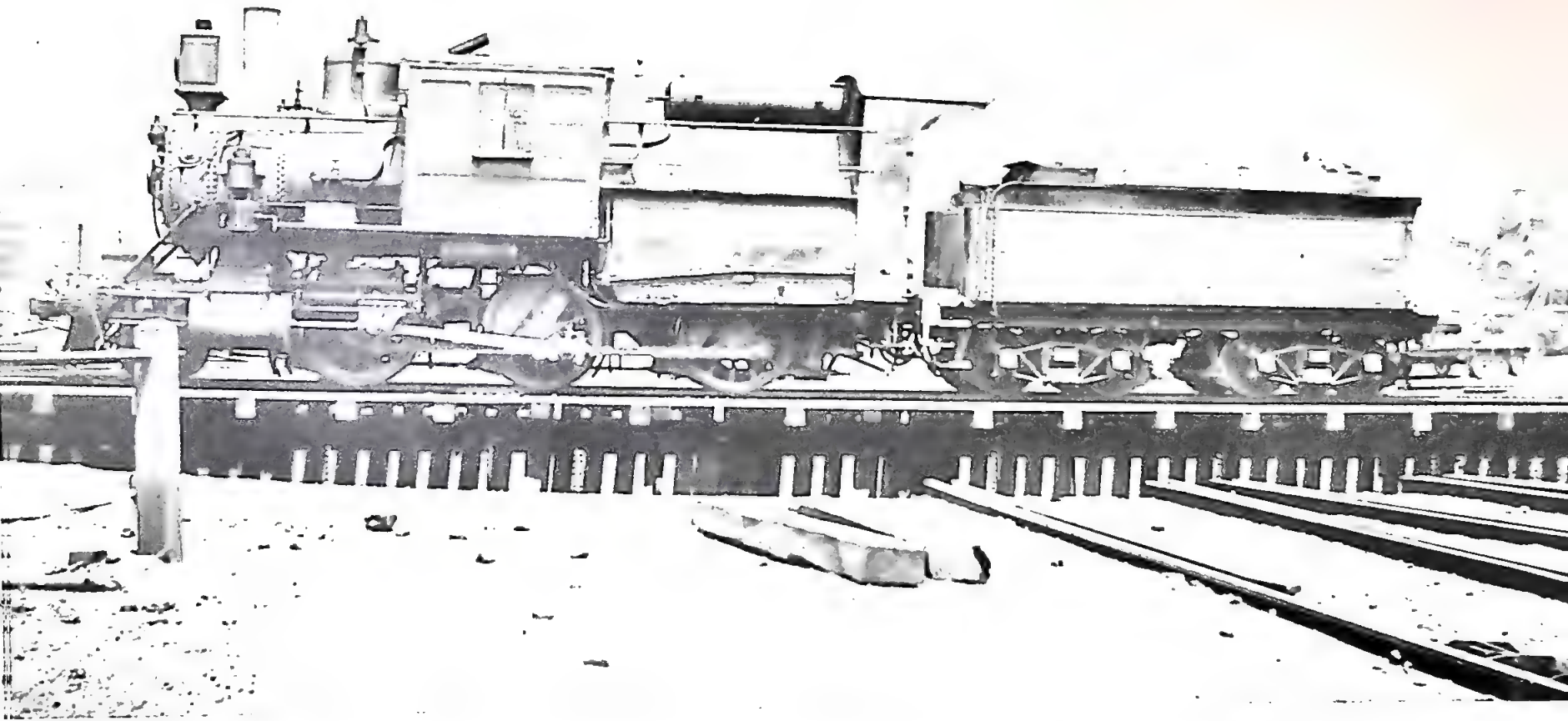
WEIGHT ON DRIVERS — 101,550 lbs.
TRACTIVE EFFORT — 21,480 lbs.
TOTAL WT. ENGINE — 173,450 lbs.



This engine was built by Cooke Locomotive and Machine Co. in 1889.

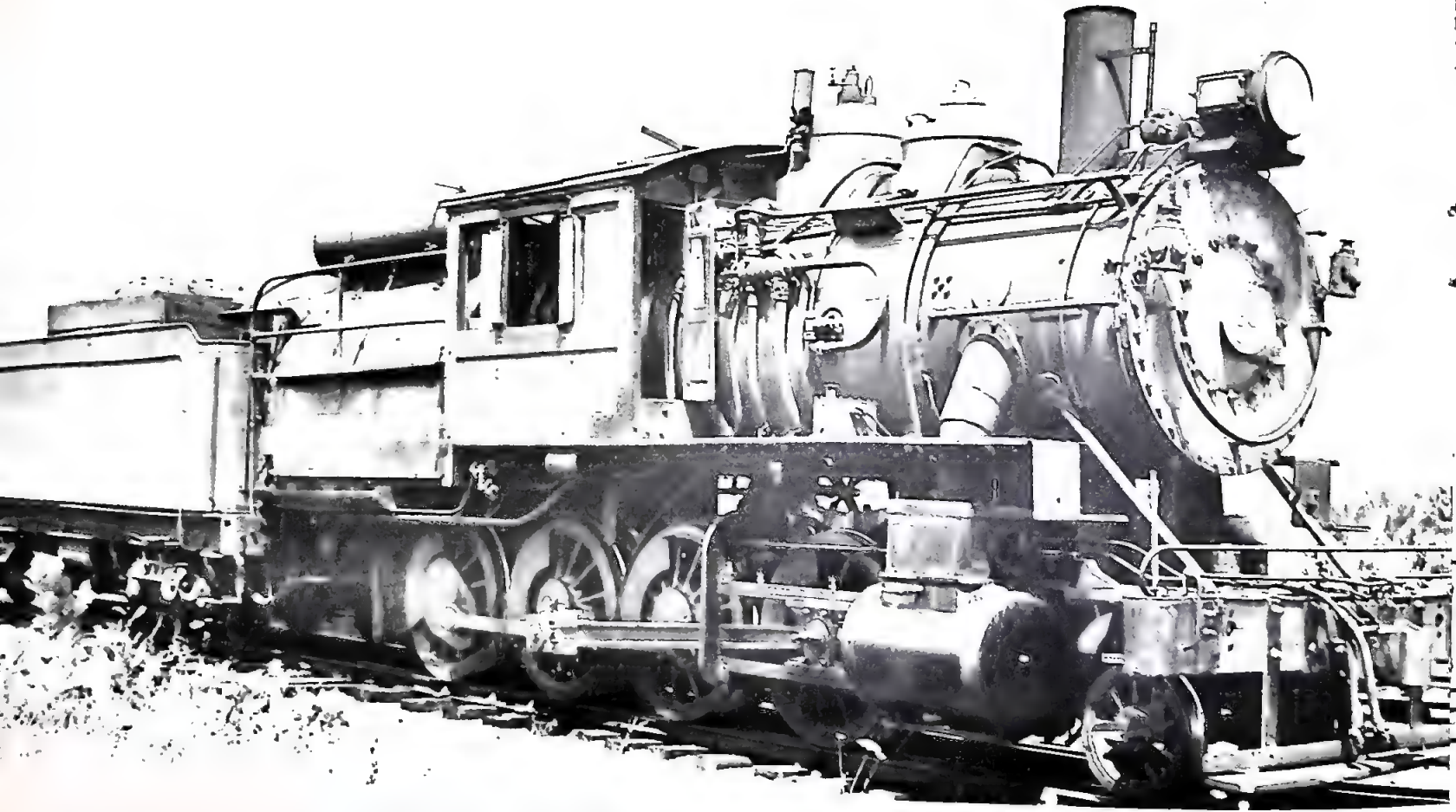
CYLINDERS — 20" x 24"
DRIVING WHEEL DIAMETER — 49¾"
STEAM PRESSURE — 140 lbs.

WEIGHT ON DRIVERS — 118,300 lbs.
TRACTIVE EFFORT — 23,000 lbs.
TOTAL WT. ENGINE — 136,300 lbs.

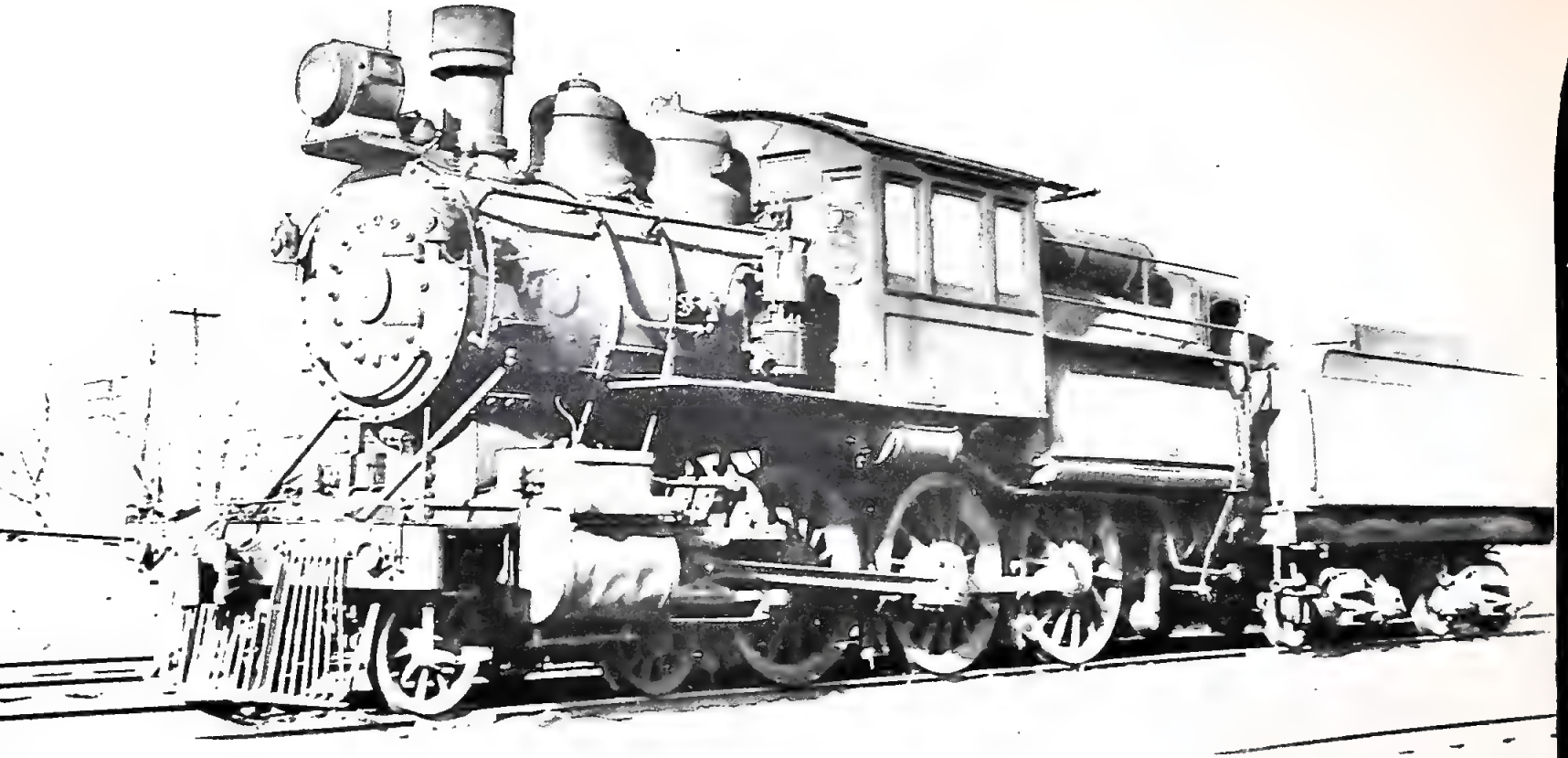


NYS&W engine No. 60 class F-27 at North Paterson, N.J. September 17, 1916. Built by Rogers in 1894.

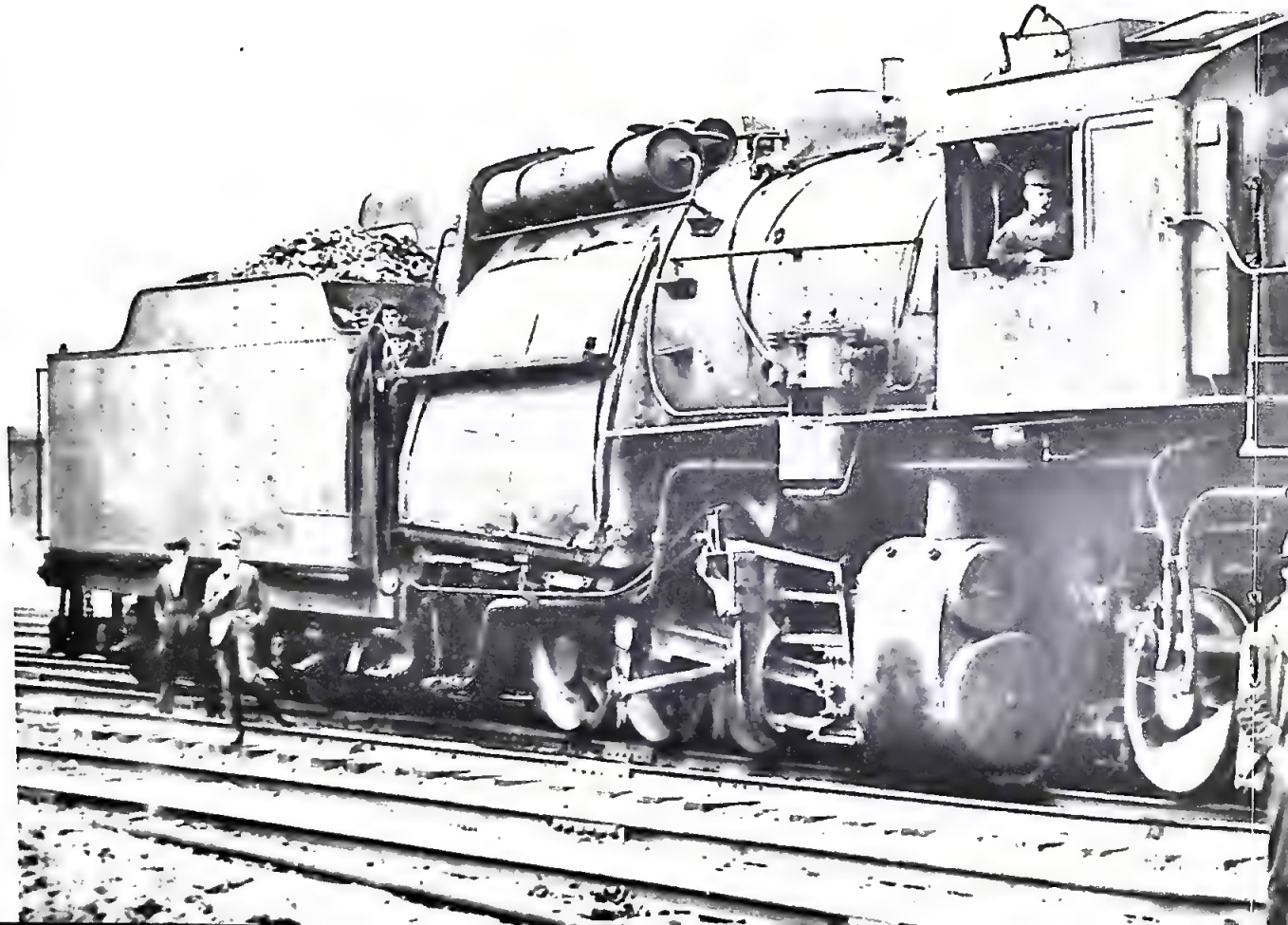
CYLINDERS – 19" x 26"
DRIVING WHEEL DIAMETER – 54"
STEAM PRESSURE – 165 lbs.
WEIGHT ON DRIVERS – 120,000 lbs.



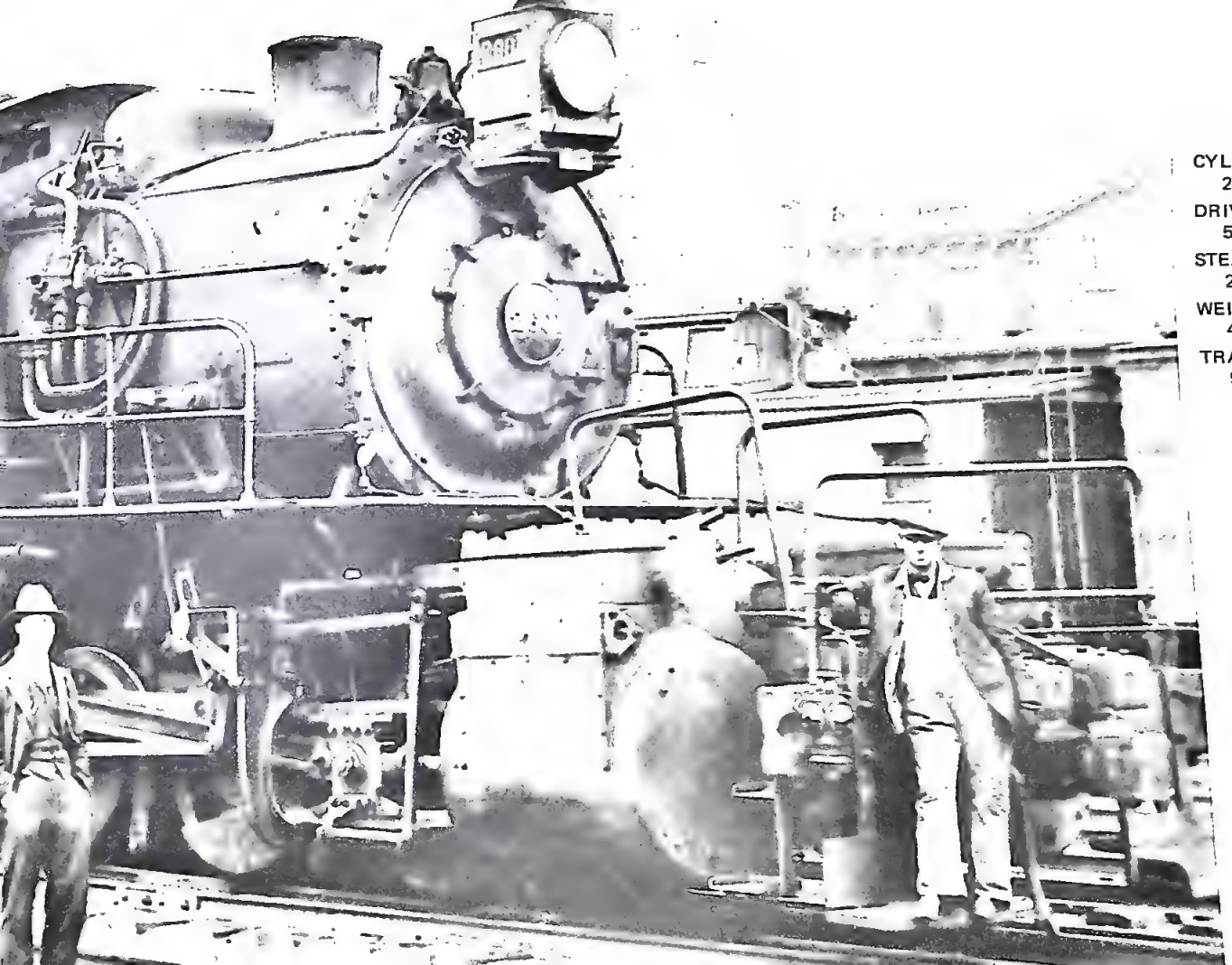
Lehigh & Hudson River Railroad engine No. 60 at Warwick, N. Y., July 25, 1936.



Middletown & Unionville engine No. 2 at Middletown N. Y., December 16, 1931.



This Class L-1 Erie Railroad engine No. 2601 was built by Schenectady 1908. Here she is at Port Jervis, N. Y., sometime in June 1911.



CYLINDERS —
25" x 39" x 28"

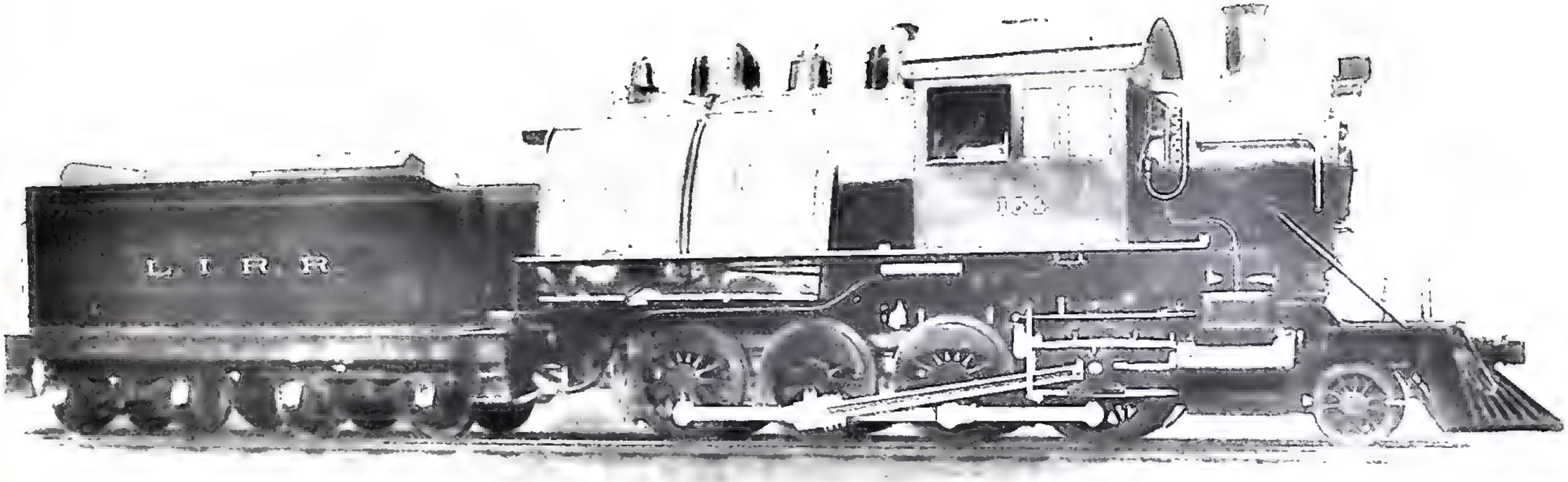
DRIVING WHEEL DIAMETER —
51"

STEAM PRESSURE —
215 lbs.

WEIGHT ON DRIVERS —
410,000 lbs.

TRACTIVE EFFORT —
94,070 lbs.

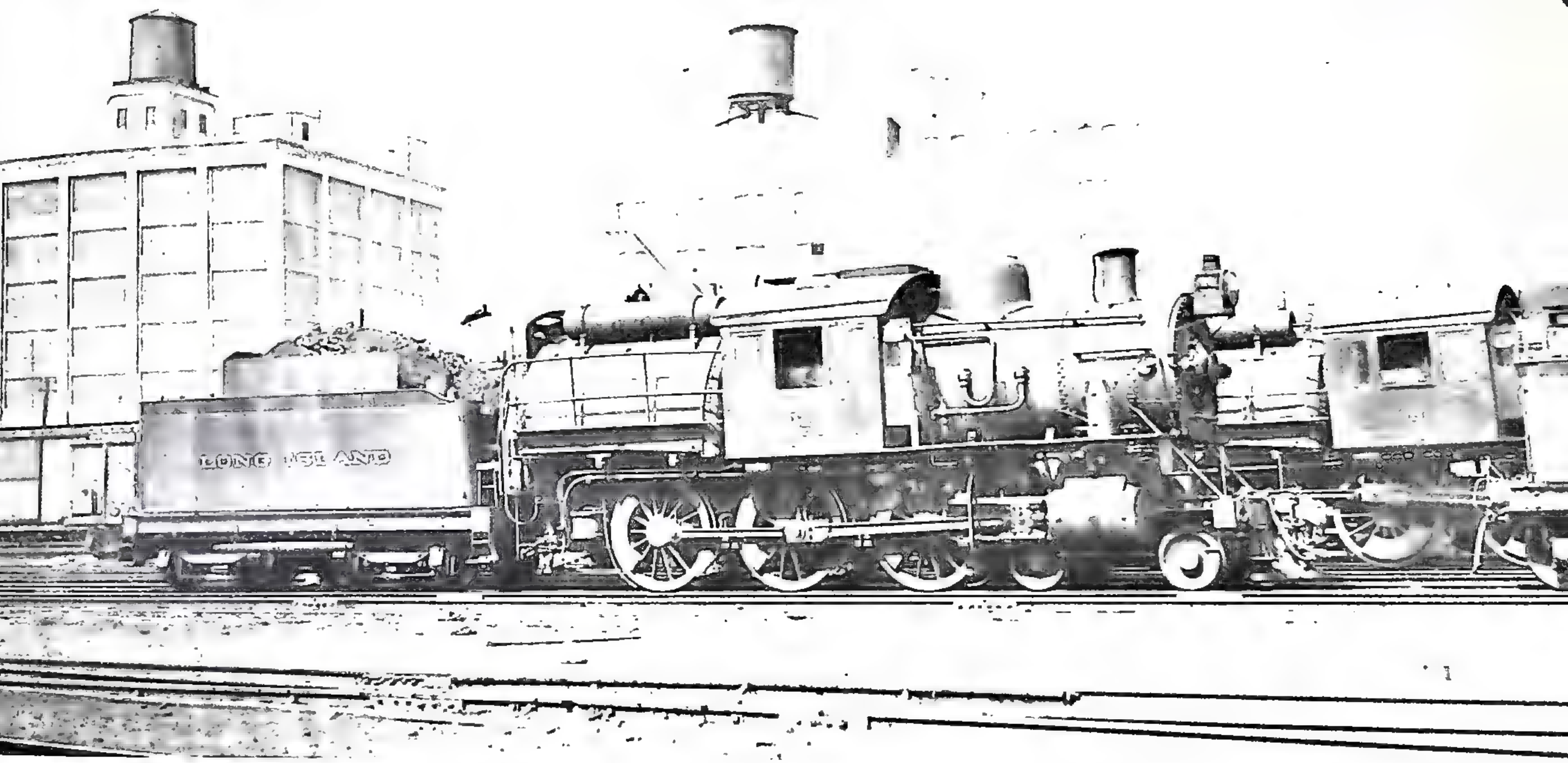
Somerville Collection



Long Island Railroad engine No. 154 — a balanced compound built by Baldwin about 1902.

CYLINDERS — 21" x 28"
DRIVING WHEEL DIAMETER — 51"
STEAM PRESSURE — 200 lbs.

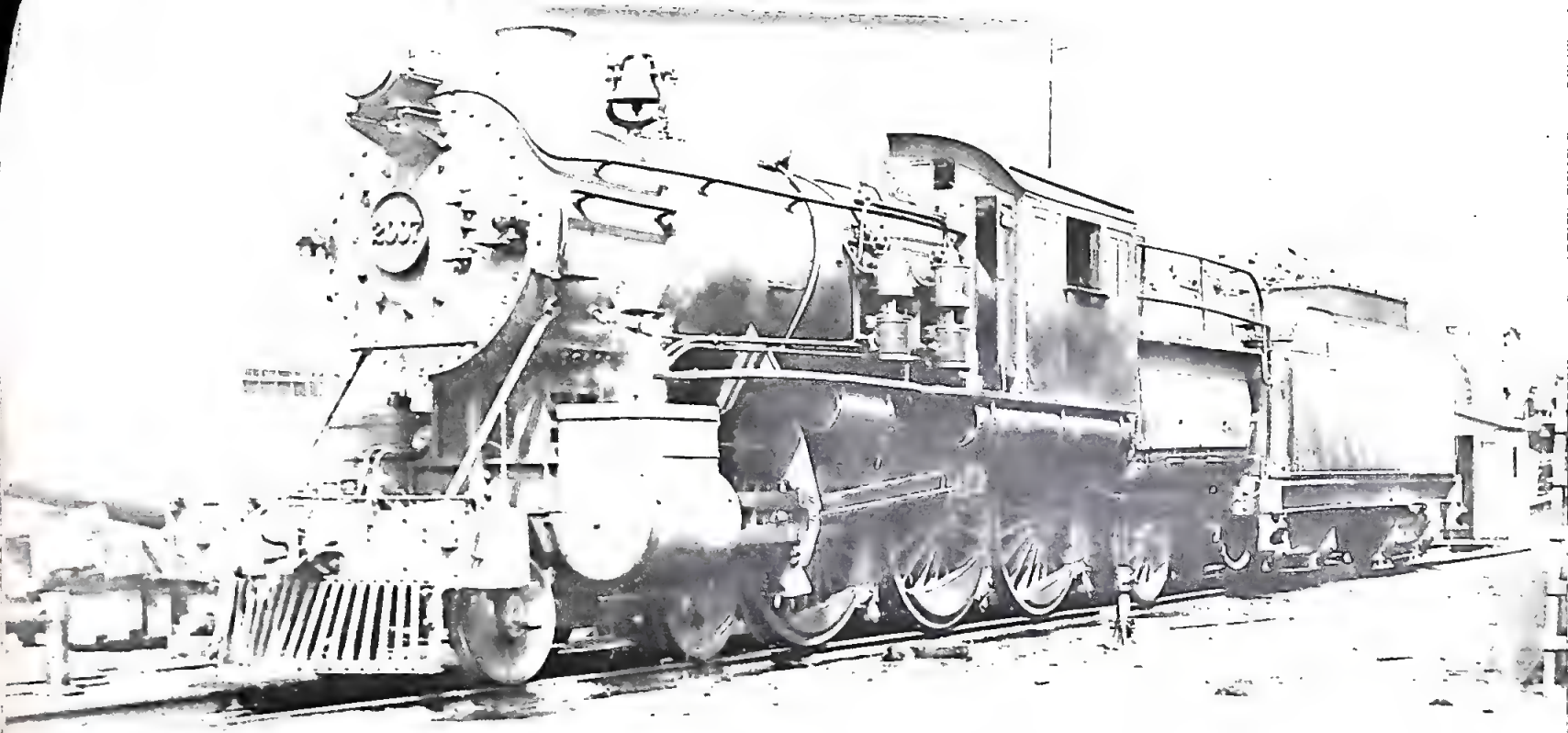
WEIGHT ON DRIVERS — 143,080 lbs.
TOTAL WT. ENGINE & TENDER — 265,000 lbs.



Somerville Collection

Long Island Railroad engine No. 14 – a class G-54sb built by Baldwin in 1902 – is shown here at Long Island City, N. Y., August 22, 1919.

CYLINDERS – 20" x 26"
DRIVING WHEEL DIAMETER – 64"
STEAM PRESSURE – 200 lbs.
WEIGHT ON DRIVERS – 140,000 lbs.

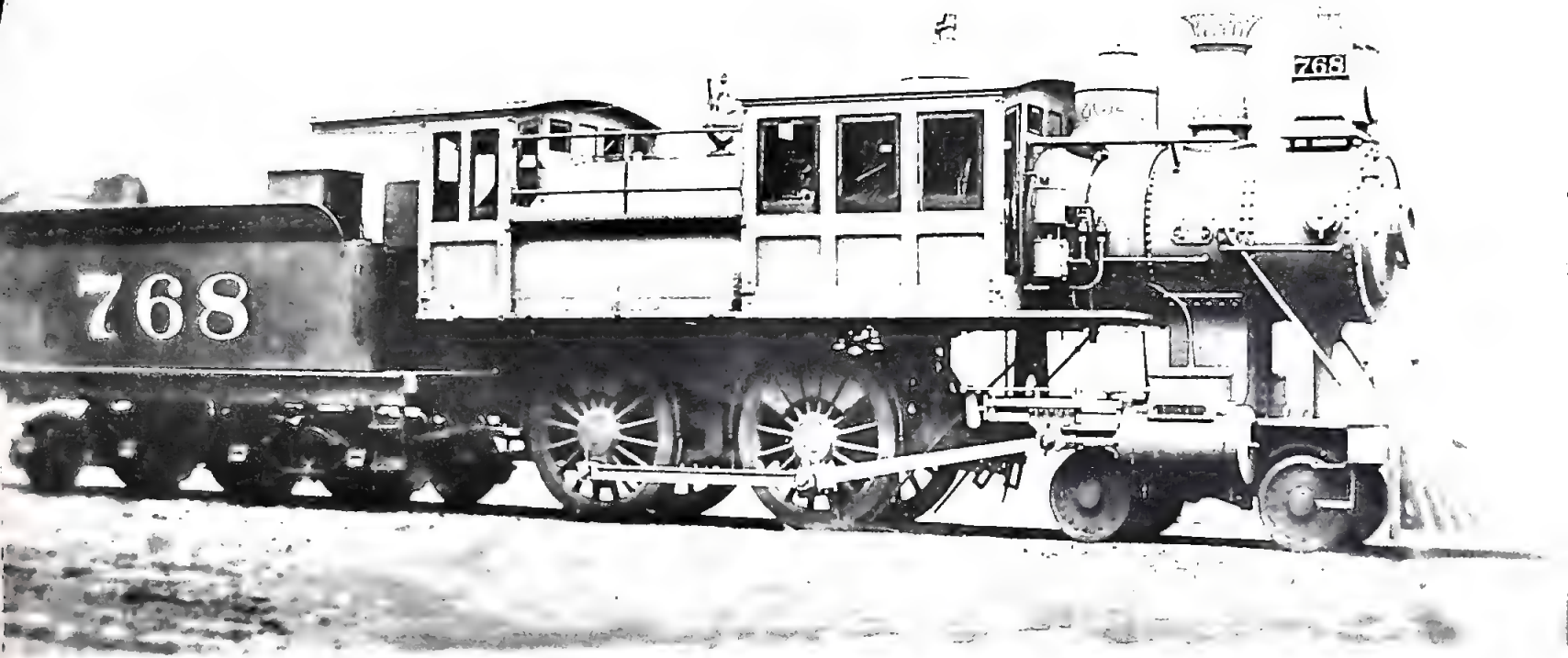


As far as is known the Lehigh Valley Pacifics were the only camelback pacific type locomotive ever built. They were Class K-1 and were built by Baldwin in 1906. Here is engine No. 2007 at Lehighton, Pa., May 30, 1920.

CYLINDERS – 22" x 28"
DRIVING WHEEL DIAMETER – 76½"
STEAM PRESSURE – 210 lbs.
WEIGHT ON DRIVERS – 153,740 lbs.
TOTAL WT. ENGINE & TENDER – 241,360 lbs.

Somerville Collection

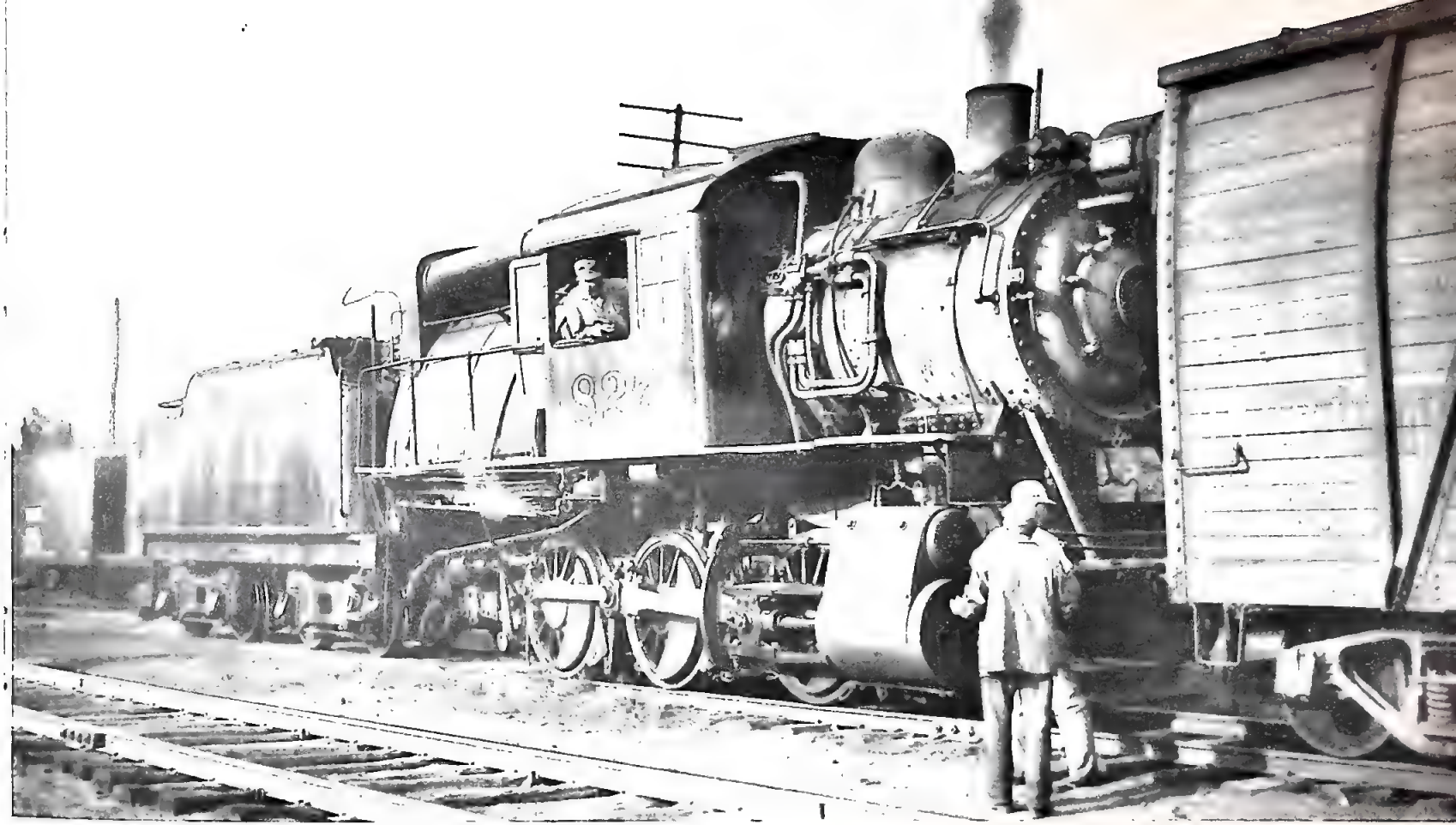
This is the BLACK DIAMOND EXPRESS with engine No. 2004 at the head end stopping at Easton, Pa., in 1906.



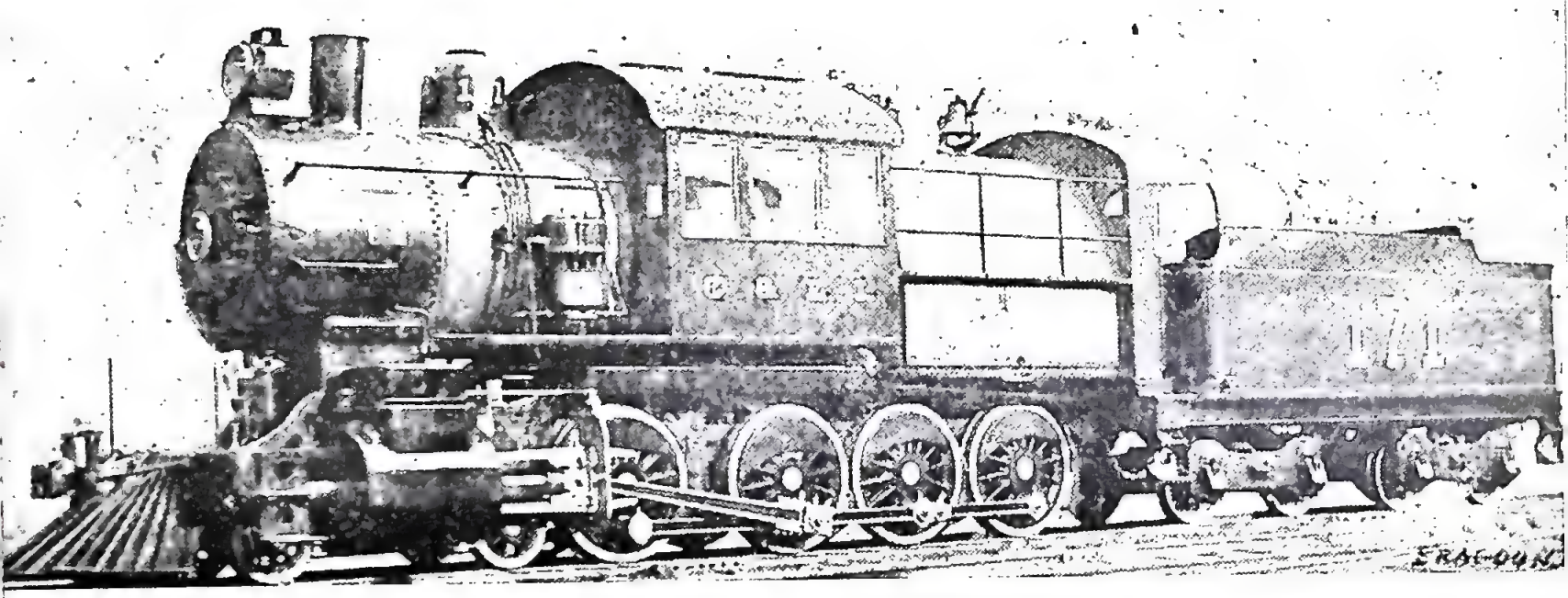
Somerville Collection

Rogers built this 4-4-0 engine for the Union Pacific Railroad in 1887.

CYLINDERS — 17" x 24"
DRIVING WHEEL DIAMETER — 60"
TRACTIVE EFFORT — 16,604 lbs.
TOTAL WT. ENGINE — 97,000 lbs.

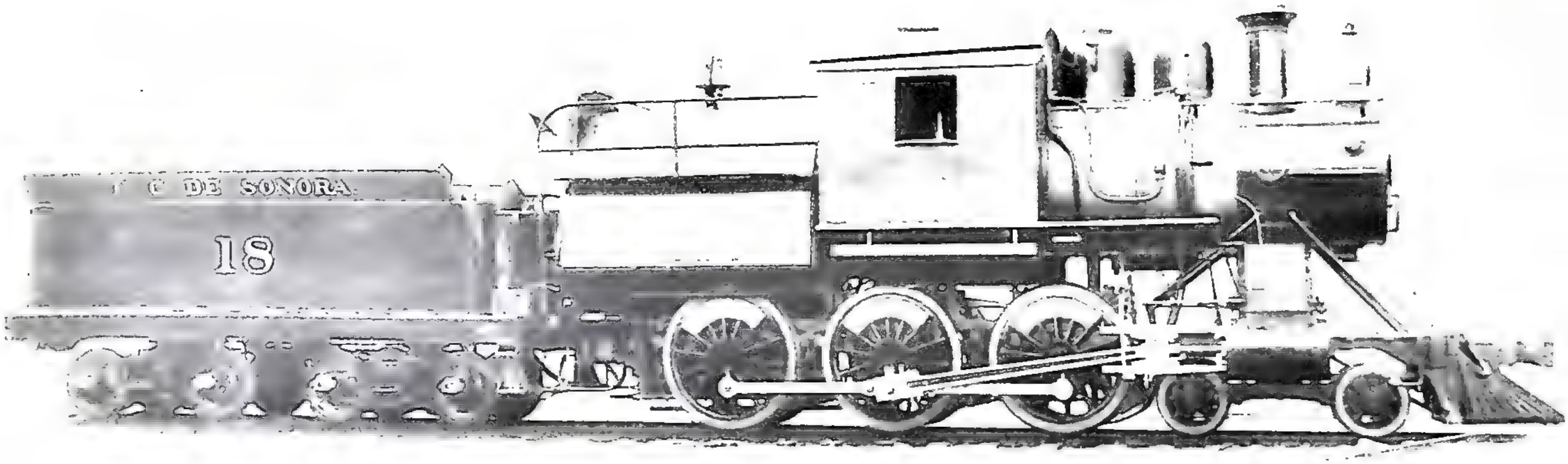


Portland Terminal engine No. 827 at Woodfords, Me.



This somewhat unusual 4-8-0 compound was built for the Chicago & Eastern Illinois Railroad about 1906, by the American Locomotive Co.

CYLINDERS — 21½" x 33" x 50"
DRIVING WHEEL DIAMETER — 54"
WEIGHT ON DRIVERS — 150,000 lbs.
TOTAL WT. ENGINE & TENDER — 189,700 lbs.



Southern Pacific ten-wheel freight locomotive built by Baldwin about 1901. Engine No. 18 was the first Wooten locomotive to invade the Pacific slope. It was built to burn a most inferior grade of Arizona coal and proved a success. The No. 18 also proved that it could burn the high-priced coal with greater economy than the narrower firebox engines employed, and was always a free steamer.

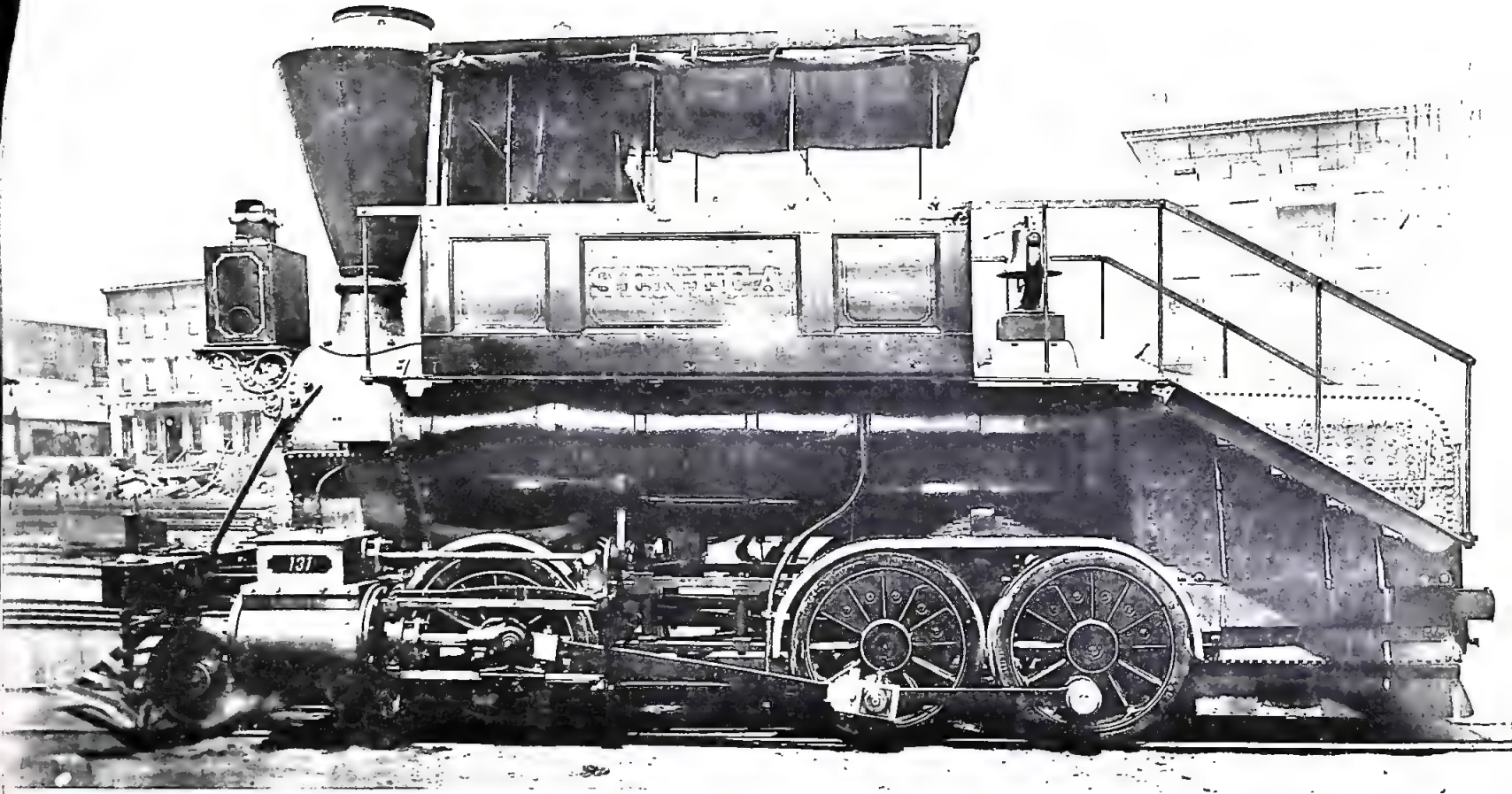
CYLINDERS — 19" x 26"

DRIVING WHEEL DIAMETER — 63"

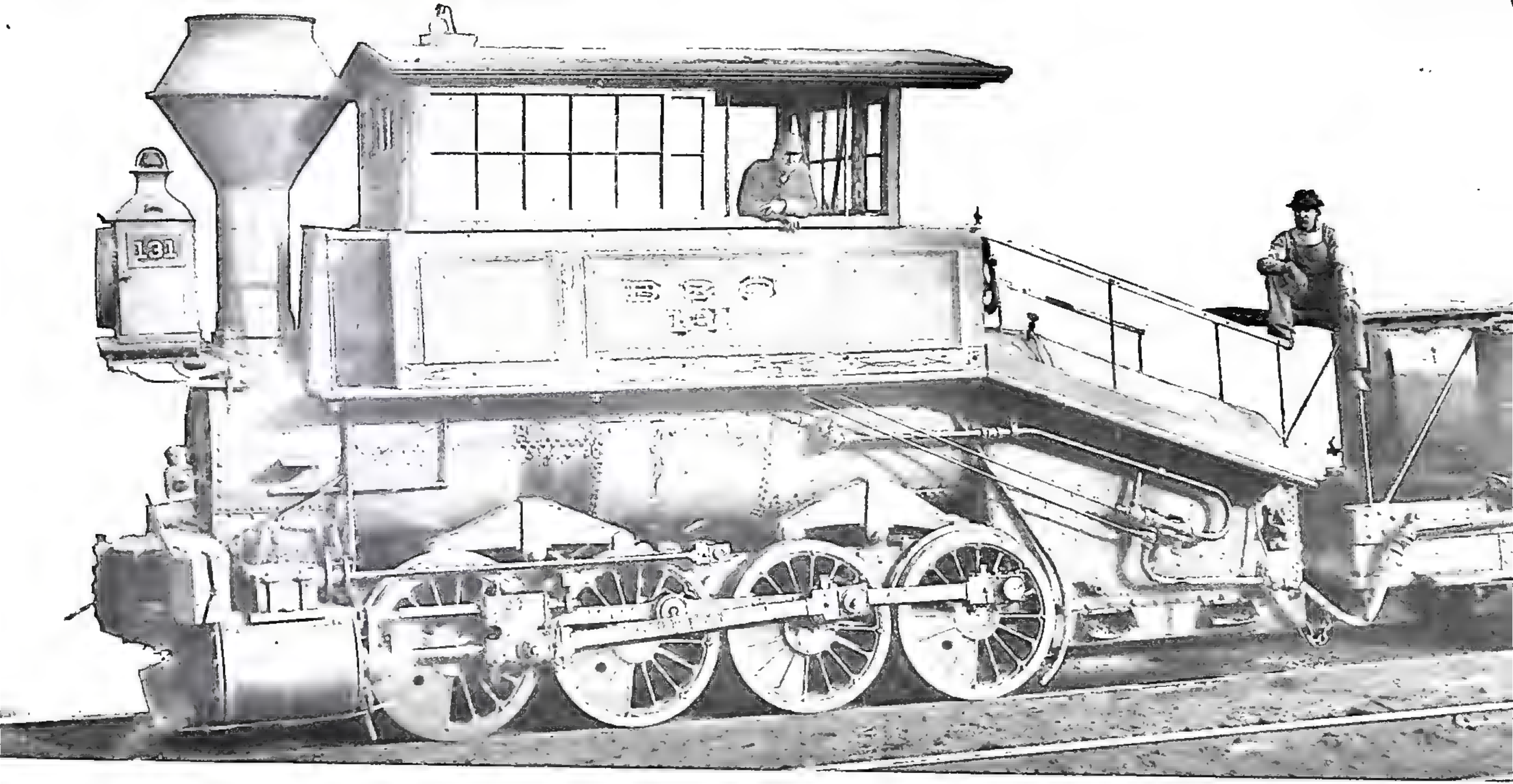
STEAM PRESSURE — 250 lbs.

WEIGHT ON DRIVERS — 117,330 lbs.

TOTAL WT. ENGINE & TENDER — 230,000 lbs.



PRR engine SENECA No. 131 as rebuilt at Altoona in 1862. Originally a Ross Winans "camel" built in 1856. The cab, boilerbarrel, dome, throttle, smoke-box, cylinders, steam-chests, parallel-rods and main rods are all original. All else is new.

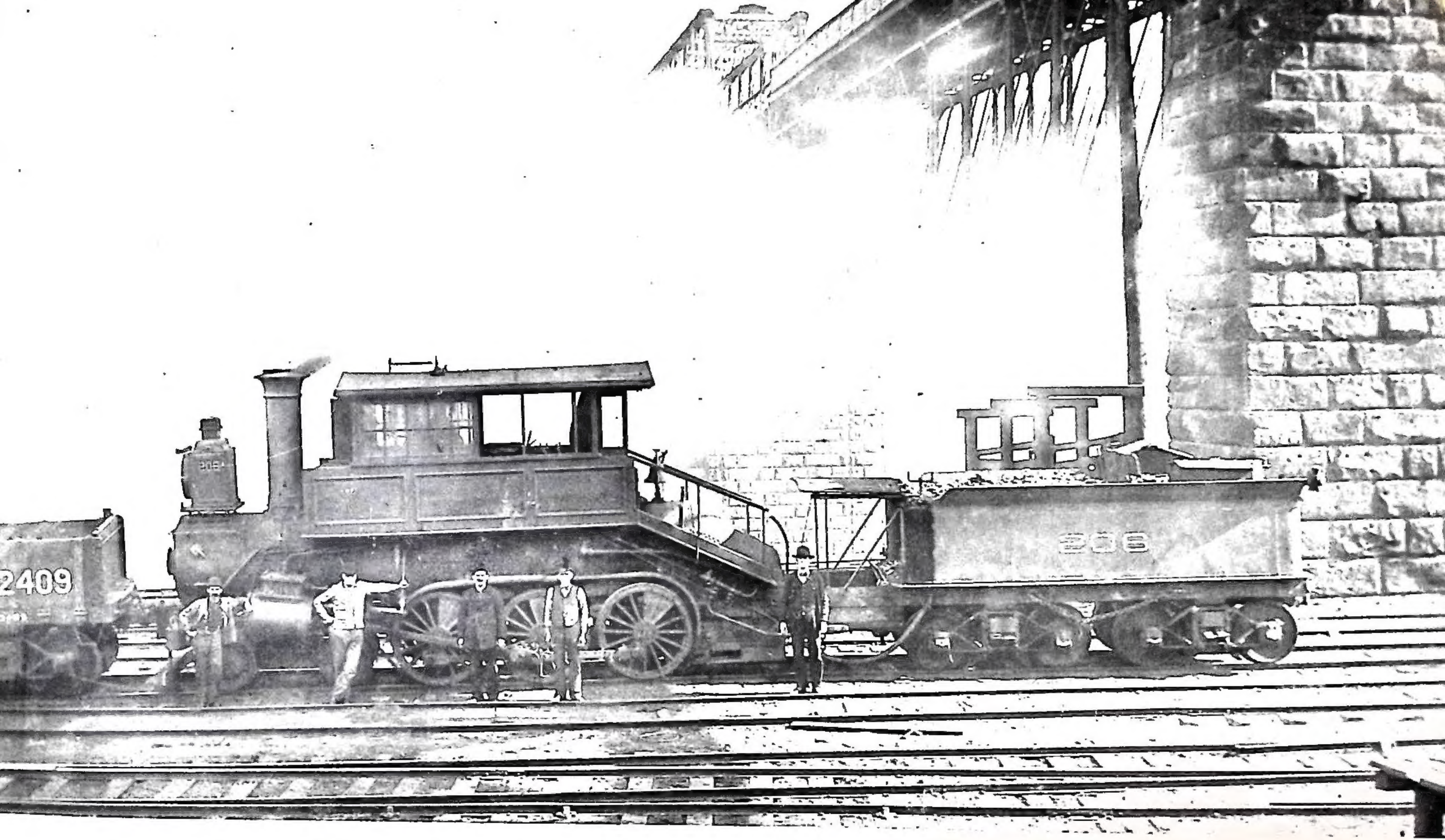


Ross Winans "Camel" No. 131 of the Baltimore & Ohio Railroad showing the manner in which these engines were rebuilt and run by that company during the later years of their service. The change in the slope of the roof-sheet is especially noticable. This picture was taken at Cumberland, Md., in 1892.

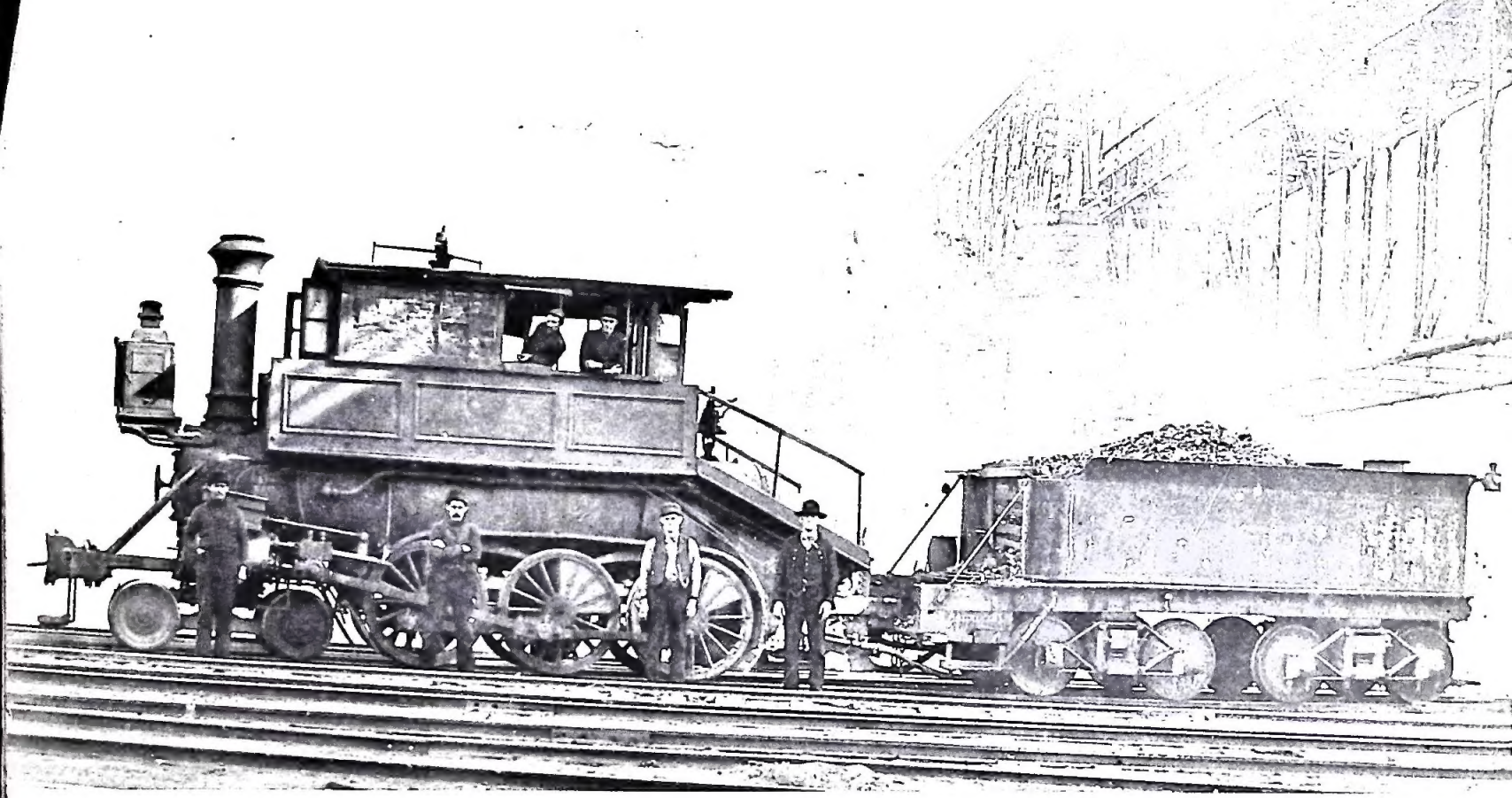
• THE BALTIMORE & OHIO RAILROAD HAYES TEN-WHEELERS ◦

In 1852 the B&O RR was opened through from Baltimore to Wheeling. In passing over the mountains the grade from Piedmont to Altamont, a distance of 17 miles, is on an average of 116 feet per mile for 11 miles, and is very heavy on the other parts. On opening the road the problem of providing engines to operate the passenger traffic on this grade presented itself. Mr. Samuel H. Hayes was then Master of Machinery. He devoted himself to the problem and from the evidence which remains it appears that he accepted the general plan of the Winans' camel engines, but in order to give greater security at considerable speeds, and on sharp curves which had to be encountered, he substituted a leading truck for the front pair of driving wheels, and in order to keep the wheel base as short as possible, he placed the truck wheels nearer together and inclined the cylinders to keep them out of their way. It will be noted that these engines had all the driving axles in front of the fire box, which overhung the rear axle. Consequently, to reduce this weight and avoid having too much weight behind, Winans' sloping fire box was adopted and the cab and dome were placed on top of the boiler near the front end. It will also be seen the engines had double cut-off valves operated by the old fashioned hook motion. Ultimately this arrangement was abandoned and links and a single valve gear were substituted for it.

Seventeen of the engines were built and proved to be very efficient machines. Many of the details of the Winans' engines were improved and the fire box was of diminished size. The frames, too, were of the solid bar type, which gave much less trouble than Winans' plate frames. Mr. Hayes left the B&O in 1856 and was succeeded by Mr. Henry Tyson. The construction of Hayes ten-wheelers was then abandoned, but as evidence of the efficiency of Mr. Hayes' engines a number of years afterwards his design was readopted by Mr. Davis, who was then Superintendent of Machinery, as standard for the road and a considerable number of such engines were then built on that plan.



Hayes ten-wheeler No. 206 was built by the Baltimore & Ohio at their Mont Clare Shops, Baltimore, about 1893. Here she is in service in the Yards at Benwood, W. Va., in 1894.



Hayes ten-wheeler engine No. 160 is slightly different than No. 206 as it has been somewhat modernized. Note stack is further forward and that the headlight is mounted on a platform. This picture was taken in 1894 while locomotive was in regular service in the yards at Benwood, W. Va.